

TUBERCULIN SENSITIVITY IN BCG-VACCINATED CHILDREN WITH COMMON WARTS

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Abstract. The tuberculin reaction in a group of 100 previously BCG-vaccinated children with common warts was significantly reduced compared with a group of 400 controls.

An increased risk of neoplastic diseases, particularly of the lymphatic tissue, has been reported in patients with cellular immunity defects due to either congenital disorders or therapeutic immuno-suppression (3). Temporary reduction of the tuberculin sensitivity during and after viral infections (such as measles) is a well-established fact (2, 5, 8, 10). As common warts may be considered a neoplastic disease caused by a virus, we found it of interest to study tuberculin sensitivity in BCG-vaccinated children with this disease. For control purposes we compared their allergy with that in a group of vaccinated children whose skin sensitivity was examined at the annual health check in school.

MATERIAL AND METHODS

The material consisted of 100 children who were admitted for common warts to The Finsen Institute during the period March to November 1972. They represent a consecutive series of patients who fulfilled the following criteria: (1) Plantar and/or palmar common warts, (2) age 5-15 years, (3) the child was previously BCG vaccinated, (4) no evidence of measles or other febrile illness within a 3-month period prior to the study. The age and sex distribution of the children is given in Fig. 1. Their average age was 11 years.

Information concerning previous BCG vaccination was confirmed by the history or a certificate and the finding of a typical scar. On average, the children had been vaccinated 6.6 years before admission to the study, the interval ranging 1-15 years. All the children were tuberculin tested (Mantoux test) by one of the authors (I. B.). One tuberculin unit (TU) RT23 from The State Serum Institute, Copenhagen, was used; the dose (0.1 ml) was given intracutaneously on the middle third of the dorsal part of the forearm. Disposable syringes tested for leakage and disposable needles were used.

The test was read after 2 days, and the reaction was measured by the transverse diameter of the induration.

The control group consisted of 400 school children in the sixth form (age 13 years) attending schools in the suburbs of metropolitan Copenhagen. They were skin tested by a specially trained team of nurses from The Danish Tuberculosis Index. The technique was identical to that used in the wart-affected patients, apart from the fact that the reactions were read at the third day; this discrepancy is not significant, however (11). In order to ensure that our readings could be compared with those taken from the controls, a calibration of the present author (I. B.) against a nurse from The Danish Tuberculosis Index was made. No systemic differences between the readers were found. The children in the control group were tuberculin tested during the scholastic year 1972/73. They had been vaccinated prior to school entrance, either by their own physician or at the local chest clinic, at an average age of 8.9 years (range 6-11 years). As the tuberculin reaction might wane with time (6), the control group was divided into three subgroups according to the interval between vaccination and tuberculin testing. Fig. 2. shows, however, that the pattern was uniform in the different groups. The χ^2 test was used for statistical analysis. The group of wart patients was tested against the total control group.

RESULTS

Figs. 2 and 3 show that the tuberculin allergy was smaller among the wart patients than among the controls. The mode for the "reactors" (i.e. a tuberculin reaction measuring 6 mm or more) was around 14-15 among the wart patients, and 35% could be classified as "non-reactors". The control group showed a significantly lower reaction ($p < 0.001$) with a mode of reactors around 18-19 mm; only 10% were "non-reactors".

DISCUSSION

Various factors may account for the reduced tuberculin sensitivity in the wart patients. It is known that different types of BCG vaccines may cause

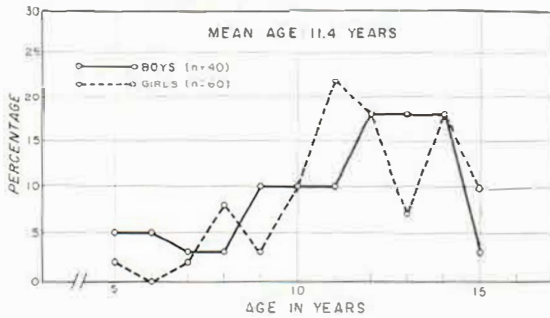


Fig. 1. The age and sex distribution among children with common warts.

different tuberculin allergies (6), but all the children had been vaccinated with the same vaccine (Danish standard); it is a very stable vaccine ordinarily giving a high allergy. Thus, this factor cannot be considered of importance in the present study.

Repeated tuberculin tests boost the tuberculin reaction (4, 7). Twenty-four of the wart children had been tested on some occasion in school time, whereas the controls had not. This factor would therefore tend to give the wart patients larger reaction than the controls, all else being equal. In other words, the real difference between wart patients and controls is larger than observed.

Some of the controls probably had common warts, this disease occurring with a prevalence of 2-3%

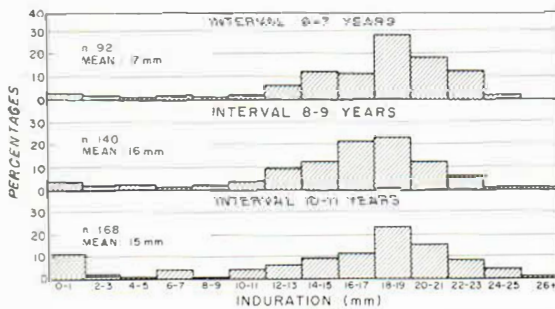


Fig. 2. Tuberculin sensitivity among the control group according to interval between BCG vaccination and tuberculin test.

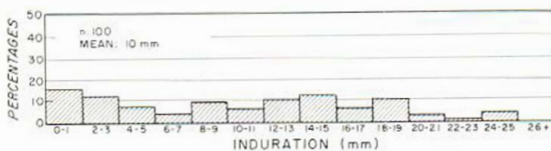


Fig. 3. Tuberculin sensitivity among children with common warts.

among school children (1, 9). This fact will therefore tend to decrease the tuberculin reaction among the controls and thereby minimize the observed difference between wart patients and controls.

Our finding, that the wart patients have a lower tuberculin allergy, is therefore considered valid. It is impossible to judge whether the reduced sensitivity results from the viral infection (warts) or whether the neoplastic disease (the wart), induced by the virus, is a result of a defective cellular immunity. A follow-up of the tuberculin reaction in wart patients after the disease has disappeared, might give additional information.

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